AMENDMENTS TO THE SPECIFICATION

Kindly replace the paragraph on page 2 beginning at line 13 and ending at line 26 with the following amended paragraph:

The disadvantages associated with the prior art are overcome by embodiments of the present invention directed to methods and apparatus for varying and measuring the position of a micromachined electrostatic actuator using a pulse width modulated (PWM) pulse train. According to a method for varying the position of the actuator, one or more voltage pulses are applied to the actuator. In each of the pulses, a voltage changes from a first state to a second state and remains in the second state for a time Δt_{pulse} before returning to the first state. The position of the actuator may be varied by varying the time Δt_{pulse}. A position of the actuator may be determined by measuring a capacitance of the actuator when the voltage changes state, whether the time $\underline{\Delta t}$ is varied or not.

Kindly replace the paragraph on page 4 beginning at line 12 and ending at line 32 with the following amended paragraph:

A circuit diagram according to an embodiment of the invention is illustrated in Fig. **1**. The circuit consists of four stages - a pulse width modulation generator **PWM**, a MEMS device, represented as a variable sensor capacitor **Cs**, an integrator, and an analog-to-digital converter **ADC**. In the circuit, an input digital word Din is first converted into a PWM pulse train by the PWM generator. The voltage pulse train includes one or more pulses characterized by a pulse width Δt_{pulse}. The voltage pulse train is applied to a MEMS **[devices]** device, represented in Fig. 1 as a variable sensor capacitor, **Cs**, and the resulting current is integrated across an integrator having a capacitance **Ci**. The amplitude of the pulse train output from the integrator is simply the amplitude of the input pulse train scaled by the ratio of the sensor capacitance to the integrator capacitance, Cs/Ci. After a short time-delay $\underline{\Delta t_s}$ to allow the integrator to settle, the amplitude of each output pulse is sampled and converted into a digital signal using a sampling analog-to-digital converter **ADC**. To allow the integrator enough time to settle, the pulse width Δt_{pulse} is preferably greater than or equal to the sum of the integrator time-delay Δt_s and the ADC conversion time, Δt_{ADC}.

Kindly replace the paragraph on page 5 beginning at line 1 and ending at line 17 with the following amended paragraph:

Fig. 2 depicts a graph of voltage versus time that illustrates capacitive sensing and pulse width modulation. The time-averaged drive voltage applied to the MEMS device may be changed by varying the pulse width Δt_{pulse}. If the pulse period T is shorter than the response time for the MEMS device, the device responds to the time averaged drive voltage. Thus, the position of the MEMS device may be varied by varying $\underline{\Delta} t_{pulse}$, i.e., by varying the duty cycle of the pulse train. Preferably, the integrator measures charge transferred during a transition of the pulse, either from high to low or low to high. Therefore, a variation in Δt_{pulse} will not affect the capacitance measurement. Since the MEMS drive operates by pulse width modulation, a constant pulse height Vp may be used, simplifying the capacitance measurement. Furthermore, since the drive voltage Vp is used as the sense voltage, a large sense signal is available, which greatly enhances the signal to noise ratio of the capacitance measurement.

Kindly amend the first paragraph on page 1 beginning at line 12 and ending at line 15 to read as follows:

The present application is a continuation of US Patent Application serial number 10/012,688 (now US Patent 6,674,383) filed October 30, 2001, ~~This application~~ which is based on and claims priority from Provisional application 60/245,249 filed November 1, 2000, the entire disclosure of both of which [[is]] are incorporated herein by reference.